

Special Metals INCOLOY® Alloy 825

Category : Metal , Nonferrous Metal , Nickel Alloy , Superalloy

Material Notes:

A nickel-iron-chromium alloy with additions of molybdenum and copper. It has excellent resistance to both reducing and oxidizing acids, to stress-corrosion cracking, and to localized attack such as pitting and crevice corrosion. The alloy is especially resistant to sulfuric and phosphoric acids. Used for chemical processing, pollution-control equipment, oil and gas well piping, nuclear fuel reprocessing, acid production, and pickling equipment. Standard product forms are round, flats, forging stock, pipe, tube, plate, sheet, strip, and wire. Data provided by the manufacturer, Special Metals.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Special-Metals-INCOLOY-Alloy-825.php

Physical Properties	Metric	English	Comments
Density	8.14 g/cc	0.294 lb/in ³	

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	690 MPa	100000 psi	Annealed
	590 MPa	85600 psi	Annealed prior to test
	@Temperature 550 Â°C	@Temperature 1020 Â°F	
Tensile Strength, Yield	310 MPa	45000 psi	Annealed
	220 MPa	31900 psi	Annealed prior to test
	@Temperature 550 Â°C	@Temperature 1020 Â°F	
Elongation at Break	45 %	45 %	Annealed prior to test.
	45 %	45 %	Annealed prior to test.
	@Temperature 550 Â°C	@Temperature 1020 Â°F	

Thermal Properties	Metric	English	Comments
CTE, linear	14.0 Âµm/m-Â°C	7.78 Âµin/in-Â°F	
	@Temperature 20.0 - 100 Â°C	@Temperature 68.0 - 212 Â°F	
Specific Heat Capacity	0.440 J/g-Â°C	0.105 BTU/lb-Â°F	
Thermal Conductivity	11.1 W/m-K	77.0 BTU-in/hr-ftÂ²-Â°F	
Melting Point	1370 - 1400 Â°C	2500 - 2550 Â°F	

Thermal Properties	Metric ^{°C}	English ^{°F}	Comments
Liquidus	1400 Â°C	2550 Â°F	

Component Elements Properties	Metric	English	Comments
Aluminum, Al	<= 0.20 %	<= 0.20 %	
Carbon, C	<= 0.050 %	<= 0.050 %	
Chromium, Cr	19.5 - 23.5 %	19.5 - 23.5 %	
Copper, Cu	1.5 - 3.0 %	1.5 - 3.0 %	
Iron, Fe	>= 22 %	>= 22 %	
Manganese, Mn	<= 1.0 %	<= 1.0 %	
Molybdenum, Mo	2.5 - 3.5 %	2.5 - 3.5 %	
Nickel, Ni	38 - 46 %	38 - 46 %	
Silicon, Si	<= 0.50 %	<= 0.50 %	
Sulfur, S	<= 0.030 %	<= 0.030 %	
Titanium, Ti	0.60 - 1.2 %	0.60 - 1.2 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.000113 ohm-cm	0.000113 ohm-cm	
Magnetic Permeability	1.005	1.005	at 200 oersted (15.9 kA/m)
Curie Temperature	<= -196 Â°C	<= -321 Â°F	

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